

## Benefits to the Warfighter

SE Core will deliver a range of benefits to our Warfighters. As an example, the development of common virtual components that are shared across all virtual training systems will reduce redundancy, increase realism, and reduce development and life cycle costs. SE Core will also facilitate the integration of OOS into virtual systems, thus providing standard computer generated forces capabilities.

Other benefits to the forces include:

- Units training together in an integrated, LVC training environment
- High fidelity terrain databases that replicate CBRNE effects
- Urban operations training with dynamic environment
- Rapid terrain database development supports contingency planning and mission rehearsal
- Interoperable virtual environment that networks Combined Arms Tactical Trainer (CATT) simulations, thus allowing units to train as combined arms teams and for joint operations in a common operating environment.
- Home Station (HS) terrain databases support unit training and enable integrated LVC exercises.



### For More Information Contact:

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[http://www.peostri.army.mil/PM-CATT/APM\\_SECore.jsp](http://www.peostri.army.mil/PM-CATT/APM_SECore.jsp)



## Synthetic Environment (SE) Core



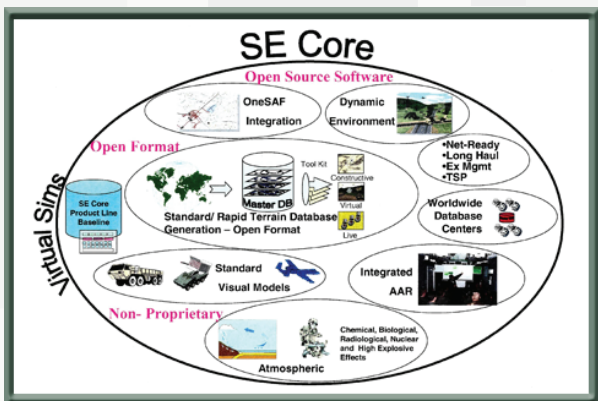


## Overview

The Synthetic Environment (SE) Core is a key U.S. Army initiative specifically designed to enhance the training and mission rehearsal capabilities we provide our Warfighters. The objective of SE Core is to ensure that the Army's virtual simulation systems are fully integrated, interoperable, and compatible with live and constructive training systems so that our Warfighters can truly "train as they fight."



Led by the U.S. Army's Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI), SE Core encompasses the Army's overarching strategy of developing virtual simulation systems that help make our Warfighters the best trained in the world. There are two primary initiatives under the SE Core program: the Architecture and Integration (A&I) and the Database Virtual Environment Development (DVED). With SE Core as the foundation, the Army will leverage existing virtual simulation systems as well as expand the overall use of virtual simulation within live, virtual, and constructive (LVC) environments to support ongoing Army transformation.



Architecture & Integration (A&I)

The SE Core A&I effort is led by Science Applications International Corporation (SAIC). This effort's primary mission is architecture analysis and development of the Virtual Simulation Architecture (VSA) to provide a Common Virtual Environment (CVE) that links system and non-system virtual simulations into a fully integrated and interoperable training capability. The VSA utilizes a product line approach that emphasizes systematic reuse and interoperability and provides the foundation and guidelines for developing common virtual components (CVC's). The CVC's will enable plug-and-play operation and are designed to provide common training elements for use within the Army's virtual simulation domain. Through commonality the VSA and CVC's will reduce future development and life cycle costs. In addition, SE Core is integrating the U.S. Army's OneSAF Objective System (OOS) into the Close Combat Tactical Trainer (CCTT) and Aviation Combined Arms Tactical Trainer (AVCATT) systems.

SE Core provides the framework using an industry extensible open architecture comprised of government and commercial off-the-shelf tools. The SE Core component extensibility will support the fulfillment of future training needs such as the Future Combat System (FCS). The components combine to create virtual simulation capabilities such as dynamic environment, atmospheric effects; after action review; exercise management tools; chemical, biological, radiological, nuclear, and high explosive (CBRNE) environments; computer generated forces; and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems.

By using a standard VSA, the Army can link the common virtual components into a plug-and-play environment, thus reducing redundancy, leveraging reuse, and facilitating the integration of the Live, Virtual and Constructive (LVC) training environments.



### Database Virtual Environment Development (DVED)

The SE Core DVED effort is led by CAE USA. This effort's primary mission is to rapidly generate correlated simulation system runtime databases for supported simulation systems. Using a DVED defined software architecture and processes along with a suite of commercial and Government off-the-shelf database development software tools, a master Synthetic Environment (SE) database is populated from a union of multiple authoritative data sources. From this master SE database and with simulation system vendor developed database formatters, runtime databases are then produced that meet the Warfighters objectives for training, mission rehearsal, and mission planning. The DVED architecture and tools will enable the generation of master SE database content and runtime simulation databases in hours or days, instead of the current production time of months.

The Army will initially establish five database production centers around the world that will serve as centralized facilities for the production of all virtual runtime databases created under the SE Core program. The first of these database production centers will be located in Orlando, Florida. The database production centers will create correlated, runtime databases for use by ground, aviation, and joint forces using virtual systems such as the CCTT, AVCATT, FCS and the supporting OOS databases.

The DVED effort will also develop common virtual vehicle models, common virtual sensor simulation software, and the virtual simulation component of dynamic environment, atmospheric effects and CBRNE simulation.

The DVED standard database architecture with its resulting increase in speed and efficiency, will allow up-to-date intelligence and surveillance data to be inserted rapidly into virtual databases, thus providing the most effective training and mission rehearsal systems to our Warfighters.

